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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/559,920
Filing Date: April 20, 2006
Appellant(s): HOCHSMANN, RAINER

Eric Kurtycz
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 6, 2008 appealing from the Office action mailed September 19, 2007 and an Advisory action mailed December 11, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,573,055	MELLING ET AL.	11-1996
6,036,777	SACHS	03-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35-37 (as appealed) are rejected under 35 U.S.C. 103(a) as being unpatentable over Melling et al. (US 5,573,055) in view of Sachs (US 6,036,777).

Melling et al. (col. 2, lines 56+) teach the claimed method for making a water dispersible casting mold comprising the use of (a) providing a water-insoluble particulate material; (b) combining the particulate material such as foundry sands with a binder including polyphosphate; (c) forming, either during or after step (b) the particulate material and binder mixture into a desired shape; and drying (removing) free water from

the mixture, wherein the polyphosphate may be derived from water soluble salt-crystal (phosphate glass). Further, the bonding agent is removable in water and sand is recyclable.

Melling et al. fail to teach the use of a powder dispensing apparatus including an assembly platform. However, Sachs (col. 4, lines 49+) teach the use of a powder dispensing apparatus including an assembly and method for producing a mold for casting molten metal, comprising: dispensing layers of powder (sand) on an assembly platform (moveable support surface) and bonding together successive layers of porous material (sand) with droplets of a binder material including the use of drying techniques including microwave for removing liquid (col. 6, lines 31+) for the purpose of shortening the cycle time of making a prototyping mold (Sachs; col. 1, lines 47+).

(10) Response to Argument

With regard to the appellant's remarks/arguments in the VII. Arguments section on pages 11-19 of the Appeal Brief, the appellant has provided arguments addressing the 35 USC 103(a) rejections of Melling et al. in view of Sachs, which is the only ground of rejection of record.

Regarding the argument related to the "*salt-crystal and protein combination*" limitation presented throughout independent claim 35, it is noted that the appellant's arguments state "*The Examiner has failed to satisfy his burden to show that a salt-crystal and protein combination would be obvious from the prior art cited*" (middle of pages 12 and 13 of brief) and "*a salt-crystal and protein combination is included in the*

claims" (bottom of page 19 of brief). However, the limitation "*comprising a salt-crystal or a salt-crystal and protein combination*" is modified by the term "or". Although the examiner agrees that a salt-crystal and protein combination is not taught by Melling et al., this feature is not required by claim 35 when taken in view of the optional term "or". Moreover, Melling et al. disclose a "salt-crystal" (which is one of the appellant's major arguments) as presented in the following section.

Regarding the appellant's argument (see page 11 of brief) that Melling et al. only teach a "glassy binder material" and not a "salt-crystal binder material" (thus allegedly lacking "factual findings" to support aspects of the rejections), the appellant argues that "Comparative Example I" of Melling et al. (see top of page 12 of brief) includes crystalline sodium phosphate (a "salt-crystal"), and further states that this material "does not work" (see bottom of page 11 of brief). The appellant also discusses "salt-crystal" (of the application) versus "glassy" (of Melling et al.) materials throughout pages 16 and 17 of the brief, as well as stating "*Melling teaches away from the use of at least a salt-crystal binder composition and only teach the use of glassy type materials*" (1st full paragraph on page 16) and "*Melling teaches away from the use of a salt-crystal binder in preference to a glassy binder material*" (last paragraph on page 17). The examiner respectfully disagrees with the appellant's narrow interpretation of what constitutes "glassy" versus "salt-crystal" materials, as Melling et al. disclose materials that are "water dispersible" (i.e. dissolvable, which is a property of a salt and NOT most glasses, which have little or no solubility -- thus not necessarily being "water dispersible"). Also, Melling et al. disclose several materials that are clearly "salts" and "salt-crystals",

including (water soluble) phosphates and borates, as well as soluble ionic salts (see abstract; column 3, lines 34-48; and column 5, lines 14-42). Importantly, claim 35 recites "solid particles of a bonding agent comprising a salt-crystal...with a sand...to form a bonding agent/sand admixture", such that (open-ended) "comprising" language would include individual salt-crystal components, rather than the overall "mixture" for which the appellant is calling "glassy" as a whole. From the disclosure of Melling et al. (see column 3, lines 34-48; and column 5, lines 14-42), it is shown that the "water soluble phosphate glass" includes ionic salts (which have a "salt-crystal" lattice on a molecular level), including a composition of 20 to 70 mol% R₂O, such that R is Na, K, or Li (all of which are alkali metals that form oxide salts). Even if the appellant insists that the entire "matrix" (mixture) of Melling et al. is not a "salt-crystal" matrix (but is instead "glassy", for which the examiner disagrees, based in part on solubility of the mixture as a whole), it is clear that "salt-crystal" materials are used as claimed "solid particles of a bonding agent comprising a salt-crystal...with a sand...to form a bonding agent/sand admixture", as alkali metal oxides form ionic salts that not only dissolve in water, but also define a crystal lattice that define a "salt-crystal" in its solid, crystalline form prior to mixing/dissolving. Although these materials form a water dispersible "matrix" upon mixing, a portion of the materials constituting the overall "matrix" are a "salt-crystal". As a result, the appellant has taken a narrow view that Melling et al. only teach "glassy" materials, when solubility of various salt materials (as set forth in the above examples of the list of ionic salts) is clearly disclosed by Melling et al. In other words, the "glassy" materials of Melling et al. would be inclusive of the appellant's claimed "salt-crystal".

Regarding the appellant's argument (on page 15 of brief) that Sachs is not proper to combine with Melling et al. under 35 USC 103(a), it is noted that the limitation "selectively applying water" is not only subject to its broadest reasonable interpretation (e.g. the mere act of turning a valve from "off to on" and from "on to off", as well as various flow rates between "off and on" meets the condition of "selectively applying water", as "selectively" would be interpreted in terms of both "time" and "location"), but such teachings are also met by Melling et al. During patent examination, the pending claims must be "given the broadest reasonable interpretation.". Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969). In the instant case, the broadest reasonable interpretation of the term "selectively" would be inclusive of the meanings relating to one (or both) of "time" and "location". Also, although the appellant argues that Melling et al. teach a mold construction method that "include ramming, pressing, blowing and extruding the mix...", an improvement of this mold construction method is taught by Sachs (who also teaches "selective" droplet placement – column 3, lines 8-48; and column 6, lines 10-38). Specifically, Sachs discloses that the assembly platform (absent from Melling et al.) in the powder dispensing apparatus (Figures 2-8 of Sachs) is advantageous for shortening the cycle time of making a prototyping mold that is used for accurately obtaining three-dimensional features that define complex metal, ceramic, or metal-ceramic composite parts in a reasonably short time period (Sachs; column 1, lines 35-52; and column 3,

lines 8-48). As a result, one of ordinary skill in the art would have recognized that the platform assembly to make a prototyping mold would have the advantageous feature to improve the efficiency of the process disclosed by Melling et al. Thus, the combination of Melling et al. and Sachs establishes a proper *prima facie* case of obviousness.

In summary, the 35 USC 103(a) rejections of Melling et al. in view of Sachs render obvious the appellant's claims, and it is the examiner's position that the 35 USC 103(a) rejections of the claims be maintained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kevin P. Kerns/
Kevin P. Kerns
Primary Examiner, Art Unit 1793

Conferees:

/Gregory L Mills/
Supervisory Patent Examiner, Art Unit 1700

Jessica L. Ward
Supervisory Patent Examiner, Art Unit 1793
/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793